

Claims

1. A solid-state camera device having a plurality of photoelectric pixels arranged in a plurality of rows and columns, and a vertical scanning circuit that selects a row of the plurality of rows of photoelectric pixels, and a horizontal scanning circuit that selects a column of the plurality of columns of photoelectric pixels, and wherein an image signal is read by selecting at least one photoelectric pixel by the vertical scanning circuit and horizontal scanning circuit and transferring a charge from the at least one selected photoelectric pixel, the improvement wherein at least one of the vertical scanning circuit or the horizontal scanning circuit comprises:
- (a) a group scanning circuit that selects a row group comprising a plurality of rows, or a column group comprising a plurality of columns, respectively; and
- (b) a selector circuit that reads image signals according to a selection signal by selecting a desired one row or one column from within the row group or column group, respectively, selected by the group scanning circuit.
2. The solid-state camera device of claim 1 wherein the horizontal scanning circuit contains a horizontal group scanning circuit that selects column groups along a first row and a horizontal selector circuit that selects at least one desired column within at least one column group selected by the horizontal group scanning circuit to provide a first pixel set, and wherein the horizontal selector circuit includes memory that stores the first pixel set, and the horizontal group scanning circuit selects column groups along a second row and the horizontal selector circuit selects at least one column within at least one column group selected by the horizontal group scanning circuit to provide a second pixel set that is stored in the memory, and wherein the horizontal scanning circuit reads the stored image signals sequentially by horizontal reading intervals.
3. The solid-state camera device of claim 1 wherein the vertical scanning circuit and the horizontal scanning circuit can read a reduced set of image signals from the photoelectric pixels by selecting less than all the rows and pixels

when the image signals are read and wherein the number of image signals read from the photoelectric pixels is uniform across each row and column in which pixels are read.

4. The solid-state camera device of claim 1 wherein the photoelectric pixels are arranged in a first sequence of color, and the vertical scanning circuit and horizontal scanning circuit read a reduced image set from the pixels in a sequence of color that is substantially identical to the first sequence of color.
5. The solid-state camera device of claim 1 wherein the horizontal scanning circuit contains a horizontal group scanning circuit that selects column groups and a horizontal selector circuit that selects at least one column within the column group, and the horizontal selector circuit has a power cutoff function that interrupts power to the columns not selected by the horizontal selector circuit.
6. The solid-state camera device of claim 1 wherein the group scanning circuit is comprised of shift registers that can be preset globally so as to select a plurality of row groups or column groups simultaneously, and whereby a signal can be synthesized by reading from a plurality of rows or columns simultaneously, which rows or columns are selected by the selector circuit from within the row groups or column groups, respectively.
7. A method of determining a maximum luminance of a plurality of pixels in a first column of photoelectric pixels of the solid-state camera of claim 6, comprising the steps of simultaneously reading a plurality of rows.
8. A method of summing image signals from a plurality of photoelectric pixels of a first row, comprising the steps of reading a plurality of columns simultaneously.
9. The solid-state camera device of claim 1 wherein the photoelectric pixels that are read can be reset.
10. A solid-state camera device having a plurality of photoelectric pixels arranged in a matrix along rows and columns and a reading scanning circuit that selects and reads photoelectric pixels, the improvement comprising:

(a) wherein the reading scanning circuit can read a reduced pixel set comprising less than the plurality of photoelectric pixels wherein the number of pixels in each row is substantially the same and the number of pixels read in each column is substantially the same.

5 11. A solid-state camera device having a color pixel matrix including a plurality of photoelectric pixels of different colors arranged in a first sequence of colors along a first row, and a reading scanning circuit that reads pixels by selecting photoelectric pixels in the color pixel matrix, the improvement comprising,

10 (a) wherein the reading scanning circuit can read a reduced pixel set comprising less than the plurality of photoelectric pixels in the color pixel matrix and wherein the sequence of pixels read in the reduced pixel set has a sequence that is substantially similar to the first sequence of colors.

12. The solid-state camera element of claim 11, wherein the plurality of photoelectric pixels are arranged in a second sequence of colors along a second row and wherein the sequence of pixels read in the reduced pixel set has a first reduced-set sequence that is substantially similar to the first sequence of colors and a second reduced-set sequence that is substantially similar to the second sequence of colors.

13. An electronic camera, comprising:

- 20 (a) a camera lens that receives image light from a photographic object;
- (b) a display;
- 25 (c) a solid-state camera device having a plurality of photoelectric conversion pixels arranged in a matrix of rows and columns so that light received by the camera lens is incident on the matrix, and a scanning circuit that can read full image information from the photoelectric pixels by sequentially selecting all photoelectric pixels, and can read a reduced set of image information from the photoelectric pixels by selecting less than all the photoelectric pixels; and
- 30 (d) a controller can control the camera device to obtain and record full image information of the entire plurality of photoelectric pixels and can control the solid-state camera device to display the reduced set of image information.

14. An electronic camera, comprising:

- (a) a camera lens that receives image light from a photographic object;
- (b) a solid-state camera device having a plurality of photoelectric conversion pixels arranged in a matrix of rows and columns so that light received by the camera lens is incident on the matrix, and a scanning circuit that reads image information from the photoelectric pixels by a first sequence of selecting each photoelectric pixels and by a second sequence of selecting less than all the photoelectric pixels thereby reducing the number of photoelectric pixels that are read;
- (c) an exposure control receives image information and sets exposure conditions of the solid-state camera device; and
- (d) a controller that controls the solid-state camera device such that the scanning circuit selects photoelectric pixels by the first sequence when the image information is recorded and selects photoelectric pixels by the second sequence when providing image information to the exposure control.